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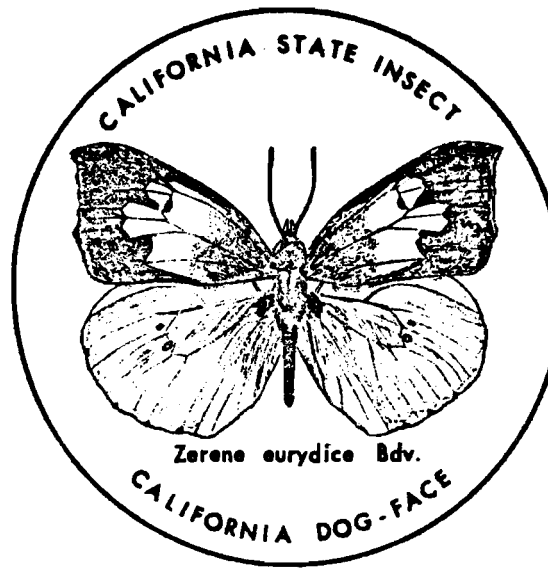
Bureau of Entomology

California Department of Agriculture



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The OCCASIONAL PAPERS of the State Bureau of Entomology will serve as a medium for papers dealing with Entomological Systematics by various Systematists within the California Department of Agriculture.

These papers will have no set publication date, but will be numbered consecutively and will appear as the respective articles are completed. As there will be no definite volumes, when approximately 300 pages are completed a TABLE OF CONTENTS will be provided to cover the issues totaling these pages.

Individual copies will be sent free of charge upon request and a regular mailing list will be maintained, including libraries and specialists.

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ERIOPHYID STUDIES XXVII

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ABSTRACT: This installment contains descriptions of the following new species and genera: Aceria georghioui, new species, on carnation on the Isle of Cypress; Tegonotus hassani, new species, a rust mite on olive in Egypt; a rediscription of the genus Vasates; Aculus, new genus, with the privet rust mite, ligustri K., as type; synopsis of the generic characters separating Phyllocoptes, Vasates, and Aculus; Aculus pelekassi, new species, a rust mite on citrus in Greece; Aciota costae, new genus and species, on glory bush in Brazil; Asetacus barbarae, a rust mite on Catalina cherry in California; Catarhinus tricholaenae, new genus and species, on Natal grass and corn in Brazil; Acarhynchus filamentus, new genus and species, on Southern cane in Virginia; Diotacus swensoni, new species, a rust mite on holly in Oregon. There is appended a key to Rhyncaphytoptine genera.

ACERIA GEORGHIOUI, new species

Plate 1

This is the third Aceria known on carnation. The characters separating the three are: Aceria dianthi (Liro) - featherclaw 5-rayed; Aceria paradianthi K. - featherclaw 6-rayed and a strong transverse line across shield ar rear 2/3; the new species - featherclaw 7-rayed with no line crossing center of shield.

Female 210-220u long, 40-45u thick, wormlike, dull yellow in color. Rostrum 26u long, projecting diagonally down. Shield 34u long, 38u wide, subtriangular. Median line complete, ending before rear margin in dart-shaped mark. Admedians complete, gradually diverging. First submedian extending from front edge back to 2/3 point and ending in a transverse line before dorsal tubercle; second submedian forking from first behind front and forking at 2/3. Lateral angles of shield somewhat bulging, with lines and granules. Dorsal tubercles 21u apart; dorsal seta 20u long. Forelegs 34u long, tibia 6.5u long, with 8u long seta; tarsus 8u long; claw 8u long; featherclaw 7-rayed. Anterior coxae narrowly contiguous. Coxae generally lined with a pattern of granules. Second setiferous coxal tubercles well ahead of transverse line thru third tubercles. Abdomen with about 85 rings, completely microtuberculate, the microtubercles rounded and set ahead of rear ring margin. Lateral seta 53u long, on ring 12; first ventral 60u long, on ring 27; second ventral 12u long, on ring 46; third ventral 28u long, on ring 9 from rear. Accessory seta 6u long. Female genitalia 26u wide, 18u long, coverflap with about 14 longitudinal furrows. Genital seta 13u long.

NOTE: the letter 'u' stands for micron in the descriptions.

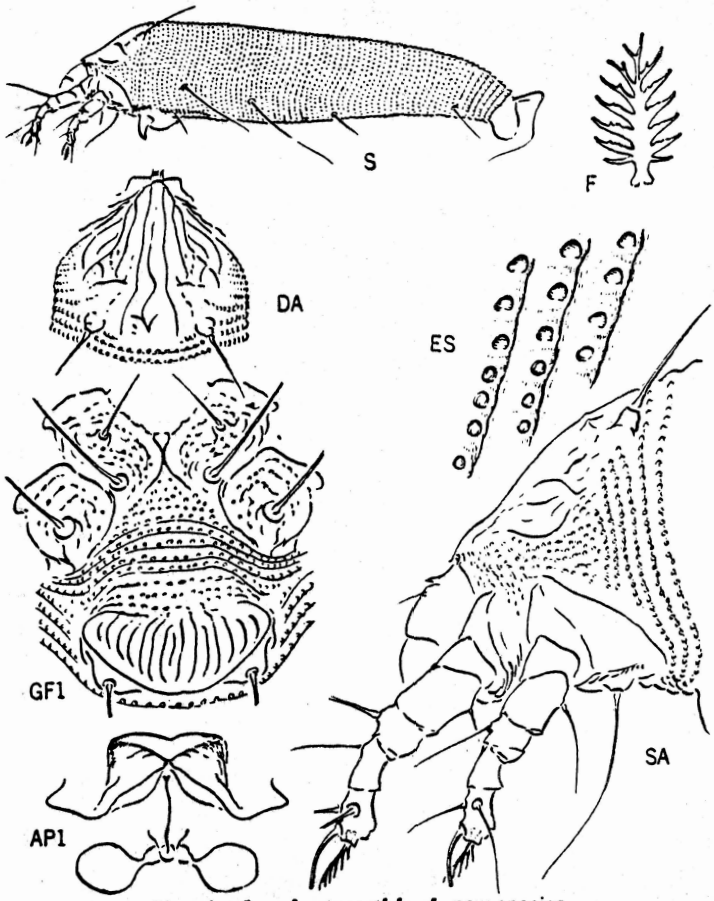

Plate 1 - ***Aceria georghioui,*** new species

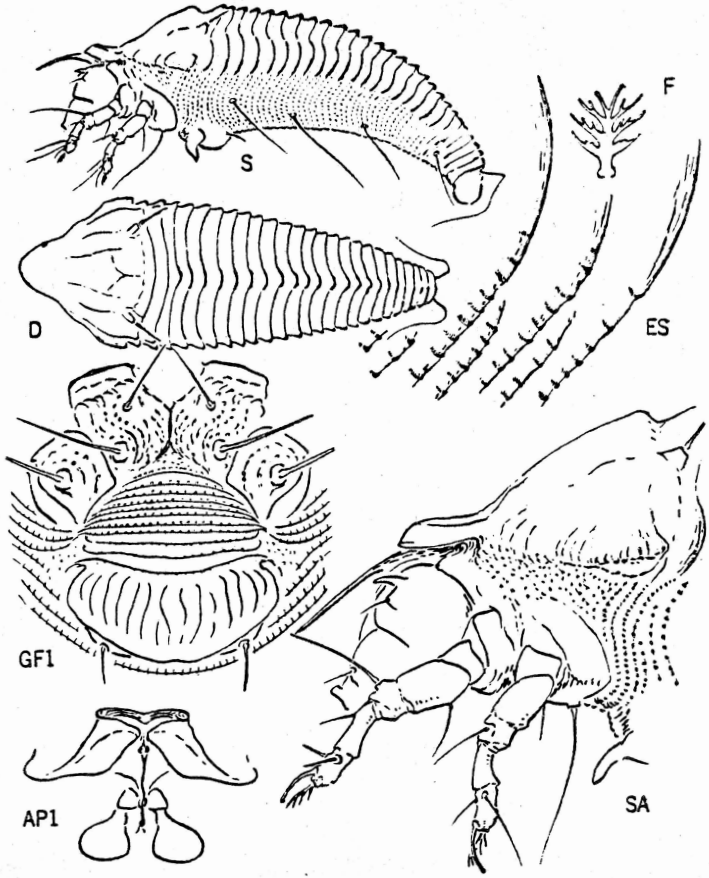

Plate 2 - ***Tegonotus hassani,*** new species

TYPE LOCALITY: Nicosia, Cypress. COLLECTED: Dec. 16, 1955 by G. P. Georghiou. HOST: Dianthus sp. (Caryophyllaceae), carnation. RELATION TO HOST: the mites are said to live in the leaf axils and cause discoloration and unthriftiness of the plant. TYPE MATERIAL: there are five slides of which one is the type and the rest paratypes.

TEGONOTUS HASSANI, new species

Plate 2

This description names another Eriophyid mite pest of olive. The previously known Eriophyid pests are Aceria oleae (Nal.), which deforms the leaves, and a rust mite, Oxypleurites newelli K., which is said to damage olive blossoms. Within the genus Tegonotus the new species is characterized by possessing a moderately produced, rather large shield lobe over the rostrum, by having an obscure shield design, by having the coxae heavily set with granules, and by having about 15 longitudinal furrows on the female genital coverflap. The mite was sent to me from Egypt by Dr. A. S. Hassan, for whom I name the species.

Female 160-180u long, 53u wide, 40u thick; body spindleform, color dull yellow. Rostrum 32u long, projecting diagonally down. Shield 48u long, 51u wide, subtriangular, with large anterior lobe moderately acute, rounded apically. Shield design obscure; some lateral shield granules on and under lateral shield lobes. Dorsal tubercles 32u apart; dorsal setae diverging to rear, 14u long. Forelegs 33u long; tibia 9u long, with seta 4u long and situated at about 1/3; tarsus 7u long; claw 7u long, curved down. Hindlegs 30u long, claw 7u long. Coxae with heavy lines of granules curving around setiferous tubercles; anterior coxae contiguous; second setiferous tubercles a little ahead of transverse line thru third tubercles. Abdomen with 26 tergites and 45-50 sternites; longitudinal central dorsal ridge, fading to rear; lateral tergal lobes covering about two sternites each; sternites with slightly elongate microtubercles; tergites lacking these. Lateral seta 34u long, on about sternite 9; first ventral 50u long, on sternite 19; second ventral 20u long, on sternite 31; third ventral 21u long, on sternite 4 from rear. Accessory seta absent. Female gentialia 27u wide, 18u long; coverflap with about 15 longitudinal furrows; seta 10u long.

TYPE LOCALITY: Giza, Egypt. COLLECTED: February, 1953, by Dr. A. S. Hassan. HOST: Olea europa L. (Oleaceae), olive. RELATION TO HOST: the mites feed on both leaf surfaces and apparently cause some leaf deformation. TYPE MATERIAL: as well as the dry leaves with mites on them, from which the slides were made, there is a type slide and nine paratype slides designated.

VASATES Shimer 1869

Shimer, H. - Trans. Amer. Ent. Soc. 2:319, 1869
Hodgkiss, H. E. - Tech. Bul. 163, N. Y. Agr. Exp. Sta. p. 16, 1930
Keifer - Bul. Cal. Dept. Agr. 33:25, 1944

In the last reference I resurrected Vasates and designated the genotype as quadripedes Shimer. This resurrection was expedient since the genotype, quadripedes, was recognized by that name. In the 1944 reference I differentiated Vasates from Phyllocoptes (type carpini

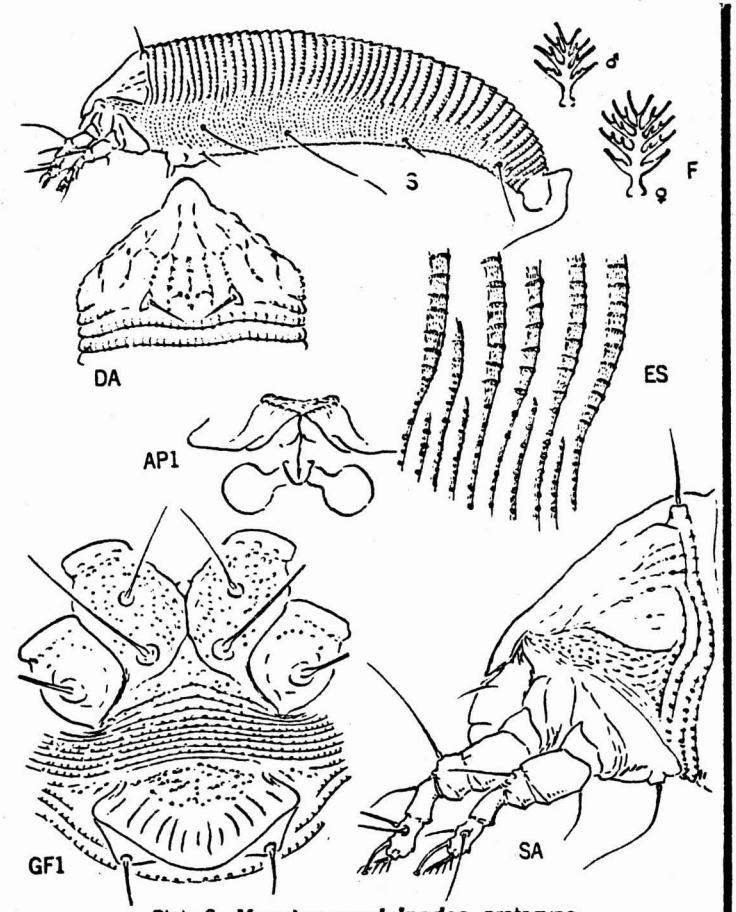

Plate 3 - ***Vasates quadripedes,*** protogyne

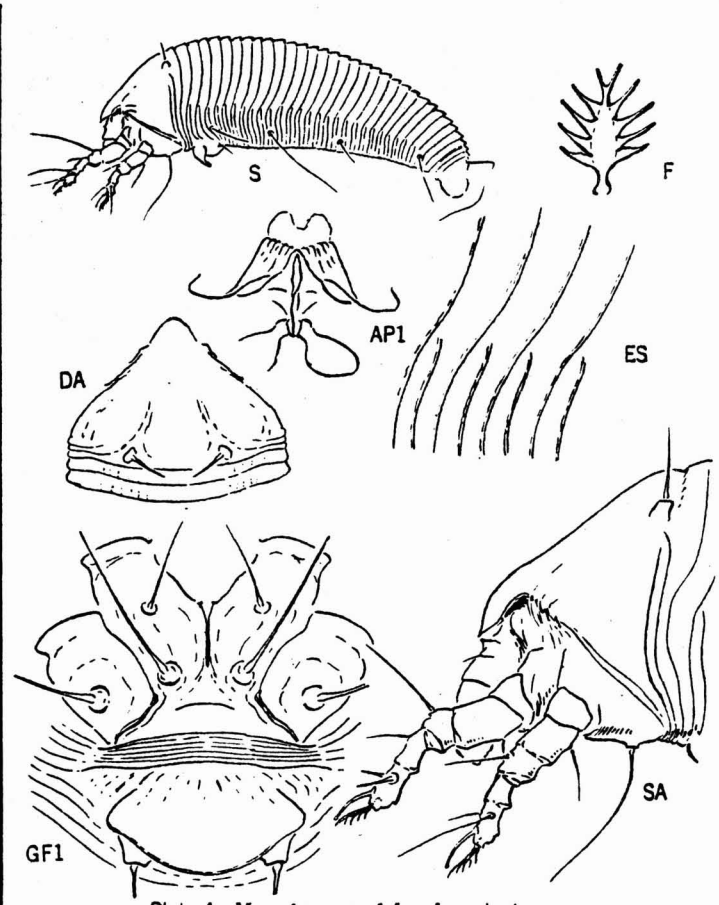

Plate 4 - ***Vasates quadripedes,*** deutogyne

Nal.) on the basis of the position of the dorsal shield tubercles. On P. carpini the dorsal tubercles are depicted as being situated well ahead of the rear shield margin. On Vasates these tubercles are on the rear shield margin, but in the case of quadripedes the transverse axis of the dorsal tubercles is on a diagonal line converging anteriorly on the midline of the body, and the dorsal setae are directed centrad and to the rear.

Dr. E. W. Baker has pointed out to me that the inclination of the dorsal setae on quadripedes is not consistent with the backwardly diverging setae of many species subsequently referred to Vasates.

To clarify the structure of Vasates quadripedes the species is depicted on plates Nos. 3 and 4. This mite is a typical member of the Phyllocoptinae. Hodgkiss states that the featherclaw is 4-rayed. Specimens which I have show the males with 4-rayed featherclaws, but the females usually have 5-rayed featherclaws.

However, a factor heretofore unmentioned in connection with quadripedes is that the species is strongly deuterogynous. The deutogynes lack a shield design and the microtubercles have palmately expanded featherclaws with five rays. This deutogyne featherclaw is quite distinct from the featherclaws of the protogynes and males.

Specimens of quadripedes on hand are from galls on silver maple leaves (type host) and come from: St. Louis, Mo., Aug. 13, 1945; H. I. Rainwater, coll.; Livingston, N. J., June 4, 1958, USDA #58-13040; from Vermont at Los Angeles, Cal., Oct. 1955; La Crosse, Wisc., 1948.

ACULUS, new genus

This genus is a member of the Phyllocoptinae. It is erected to accomodate certain species heretofore referred to Vasates. These species have the dorsal tubercles reclining over the rear shield margin with their transverse axes parallel to the rear shield margin. These tubercles direct the dorsal setae backward and outward. Part of these species, including the genotype of Aculus, have another group character that undoubtedly indicates relationship. This character is the presence of a pair of small forward directed spines from the anterior shield lobe that are extensions of a pair of longitudinal thickenings on the underside of this lobe. These spines should not be confused with the single point of an acuminate anterior shield lobe.

Generic description: body generally spindleform, somewhat dorsoventrally flattened as a rule. Rostrum relatively small, projecting diagonally down; chelicerae short, nearly straight; oral stylet short, recurving well below chelicera base. Shield subtriangular, with anterior lobe overhanging rostrum; protogynes with a pair of forward-directed small spines from anterior point of lobe, or from underside. Dorsal shield tubercles on rear margin, well spaced, projecting backwards, directing dorsal setae backwards and outwards. Coxae with three pair of setiferous tubercles. Legs with usual series of setae. Abdomen of protogynes usually with tergites broader and strongly differentiated from sternites; often a slight subdorsal furrow extending a short distance caudad from rear shield margin. Lateral, first, second and third pairs of abdominal ventral setae present. Female genital coverflap usually with furrows; internal apodeme of normal length, broad.

Deutogynes lacking anterior lobe spines, with tergites and sternites less differentiated and microtubercles more or less suppressed.

Genotype: Phyllocoptes ligustri K., hereafter to be known as

Aculus ligustri (K.). This is the privet rust mite. As stated above it has the anterior pair of small spines. It is not deuterogynous due to the evergreen nature of privet. The genus name is derived from the first two letters of Acarus plus the diminutive ulus.

As well as the genotype there are a series of California species that possess the small pair of anterior spines. These are listed as follows with those that are known to be deuterogynous accompanied by the designation (d). The deutogynes have no anterior pair of spines.

Aculus cornutus (Banks) - peach silver mite (d)
Aculus curynotus (Nal.) - celery rust mite
Aculus fockeui (Nal.) - plum nursery mite (d)
Aculus malivagrans (K.) - apple rust mite (d) (schlechtendali Nal.?)
Aculus rhododendronis (K.) - azalea rust mite
Aculus symphoricarpi (K.) - snow berry rust mite
Aculus tamalpais (K.) - native filbert rust mite
Aculus wegnoni (K.) - Sierra plum rust mite (d?)

A considerable series of rust mites, of which the tomato russet mite, Aculus lycopersici (Massee), is one, possess the backward projecting and divergent dorsal setae, but lack the pair of small anterior spines. The next new species is one of these.

SYNOPSIS OF THREE PHYLLOCOPTINE GENERA

PHYLLOCOPTES Nalepa, 1889 (type carpini Nal.) - Shield subtriangular, with anterior lobe over rostrum, this lobe simple or acuminate. Dorsal tubercles set ahead or inclined ahead of rear shield margin, the transverse axis of these tubercles either parallel to main body axis or on posteriorly converging diagonal lines; dorsal setae inclined up and centrad or enterocentrad.

VASATES Shimer, 1869 (type quadripedes Shimer) - Shield subtriangular, with anterior lobe over rostrum, this lobe lacking a pair of forward projecting spines. Dorsal tubercles set on rear shield margin their transverse axis on an anteriorly converging diagonal line; dorsal setae directed up and caudocentrad.

ACULUS, new genus (type ligustri K.) - Shield subtriangular, with anterior lobe over rostrum, this lobe with or without a pair of small forward pointing spines. Dorsal tubercles on rear shield margin, well spaced, their transverse axes parallel to rear shield margin; dorsal setae directed caudad and diverging.

ACULUS PELEKASSI, new species

Plate 5

This species is a citrus rust mite. From the common citrus rust mite, Phyllocoptruta oleivora (Ashm.), the new species is distinguished by having a convex back rather than a concave back, and in having the dorsal tubercles arising at the rear shield margin, rather than ahead of the margin. Within the genus Aculus, this mite is characterized first by being a species lacking a pair of small spines on the anterior shield lobe, and by the following combination: strong admedian lines and a strong sublateral line on the shield; tergites without

microtubercles; four-rayed featherclaw.

Female 140-150u long, 45u thick, spindleform, light yellow in color. Rostrum 24u long, projecting diagonally down. Shield 36u long, 40u wide, sides subparallel, anterior lobe with narrow anterior projection, acuminate in side view. Median line present beginning at 1/4. Admedian lines complete, originating on central anterior lobe, curving back with, and forking from lateral line at anterior 1/5, extending posteriorly to rear 1/5 where they join cross lines from median line, and diverging behind these. Strong lateral shield line, above shield edge, running to rear margin and forming cells along edge. D orsal tubercles 26u apart, on rear margin; dorsal setae 9u long, diverging to rear. Forelegs 26u long; tibia 6.5u long, with 4.5u long seta; tarsus 6.5u long; claw 5u long; Featherclaw 4-rayed. Hindlegs 23u long, claw 6.5u long. Coxae with few lines; anterior coxae narrowly contiguous; first setiferous tubercles set ahead of a transverse line thru third tubercles. Abdomen with about 36 tergites and 50 sternites; subcircular in cross section, the dorsum of the abdomen convex. Tergites lacking microtubercles, the sternites with rounded microtubercles on rear ring margin. Lateral seta 26u long, on sternite 6; first ventral 40u long, on sternite 16; second ventral 7u long, on sternite 30; third ventral 21u long, on sternite 6 from rear. Accessory seta 2u long. Female genitalia 20u wide, 13u long; coverflap with either longitudinal or curved furrows; seta 25u long.

TYPE LOCALITY: Preveza, Northwestern Greece. COLLECTED: Sept. 12, 1958 by Dr. C. D. Pelekassis. HOST: Citrus, mandarin and orange, Rutaceae. RELATION TO HOST: the mites are rust mites of economic importance. TYPE MATERIAL: a type slide and five paretype slides are designated. The species is named after the collector.

ACIOTA, new genus

The distinguishing features of the small mite on which this genus is based are the broad flat back, flanked on each side by two lateral ridges, on the lower of which is an acute point on each tergite. The dorsal tubercles are laterally placed, unusually produced, and the dorsal setae diverge to the rear.

Generic description: body elongate-spindleform, flattened. Rostrum rather small, projecting down; recurved apical portion of oral stylet shorter than base plus pharyngeal pump, the stylet recurving well below the chelicera base. Shield somewhat elongate, anterior lobe over rostrum acute in dorsal view and deep in lateral view; shield sides subparallel. D orsal tubercles widely separated, produced from rear shield margin; dorsal setae diverging to rear. All normal coxal setae present. Legs with all usual Phyllocoptine setae except for missing foretibial seta. Abdomen strongly divided into tergites and sternites, each tergite covering about two sternites. Abdomen dorsally nearly flat, the flat area tapering caudally; laterally the tergites with two ridges, the lower ridge with an acute point on each lobe. Female coverflap with longitudinal furrows; internal apodeme of normal length, broad.

Genotype: Aciota costae, new species

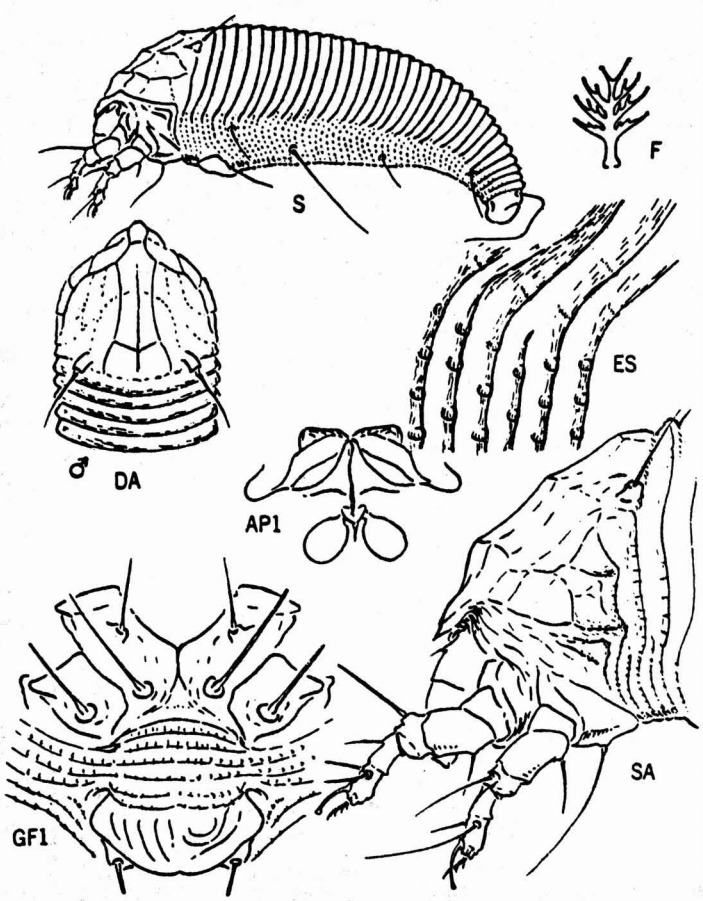

Plate 5 - ***Aculus pelekassi,*** new species

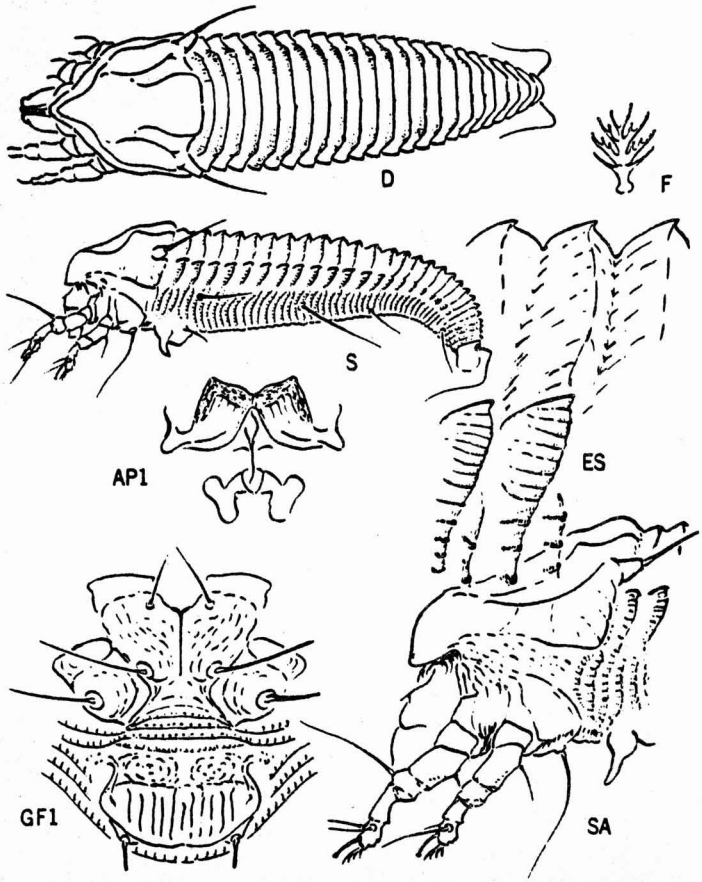

Plate 6 - ***Aciota costae,*** new species

ACIOTA COSTAE, new species

Plate 6

Female 150u long, 38u wode, 30u thick, elongate-spindleform, dull yellow in color. Rostrum 18u long, projecting diagonally down. Shield 42u long, 35u wide, anterior lobe over rostrum produced and acute in dorsal view. Admedian shield lines present on rear 1/2, diverging; first submedians present in centro-lateral area; lateral lines diverging from front lobe along sides of shield. Dorsal tubercles 28u apart, produced; dorsal setae 14u long. Forelegs 25u long; tibia 9u long, lacking seta; tarsus 7u long, claw 6u long, with small knob. Hindlegs 23u long; claw 6.5u long. Coxae with a pattern of short lines; anterior coxae broadly contiguous along a straight line; second setiferous tubercles ahead of transverse line thru third tubercles. Abdomen with 27 tergites and 40-50 sternites; form as described for the genus; sternites with elongate microtubercles; lower lateral lobes with longitudinal lines. Lateral seta 13u long, on sternite 6; first ventral 33u long, on sternite 19; second ventral 12u long, on sternite 30; third ventral 15u long, on sternite 4 from rear. Accessory seta absent. Female genitalia 21u wide, 14u long, coverflap with about 12 longitudinal furrows and pattern of basal whorls of short lines; seta 9u long.

Male 135u long.

TYPE LOCALITY: Campinas, Brazil. COLLECTED: November 1958, by Dr. A. S. Costa. HOST: Tibouchina mutabilis Cogn. (Melastomaceae), glory bush. RELATION TO HOST: the mites live among the coarse hairs on the undersurface of the leaves. TYPE MATERIAL: as well as the dry leaves with mites, from which the slides were made, there is a designated type slide and four paratypes. There is a predominance of males present on the leaves examined. The species is named for the collector, Dr. A. S. Costa, who sent me the material. The genus name consists of the first two letters of Acarus, plus iota. The genus is a member of the Phyllocoptinae.

ASETACUS BARBARAE, new species

Plate 7

This new species is characterized by having a 5-rayed featherclaw, by having the admedian shield lines converge to the rear, and by a bilobed anterolateral shield projection on each side of the rostrum. The other species of Asetacus is madronae K., which has a 6-rayed featherclaw and the admedian shield lines diverge posteriorly. The host of the new species is the Rosaceous Catalina cherry. The host of the former species is the Ericaceous madrone. Both hosts are coastal in habit.

Female 170u long, 60u thick, robust-spindleform, dull light yellow; in life covered with white wax powder. Rostrum 60u long, projecting down; apical sensory setae of moderate length and curved down. Shield 34u long, 50u wide, subtriangular. Anterior shield margin indented, with a short lobe over rostrum; a pair of antero-lateral shield lobes, projecting ahead of central lobe on each side. Median shield line nearly complete; admedian lines from sides of central anterior lobe, extending backward subparallel to median line, curving centrad at rear; scattered short dashes between admedians and median line.

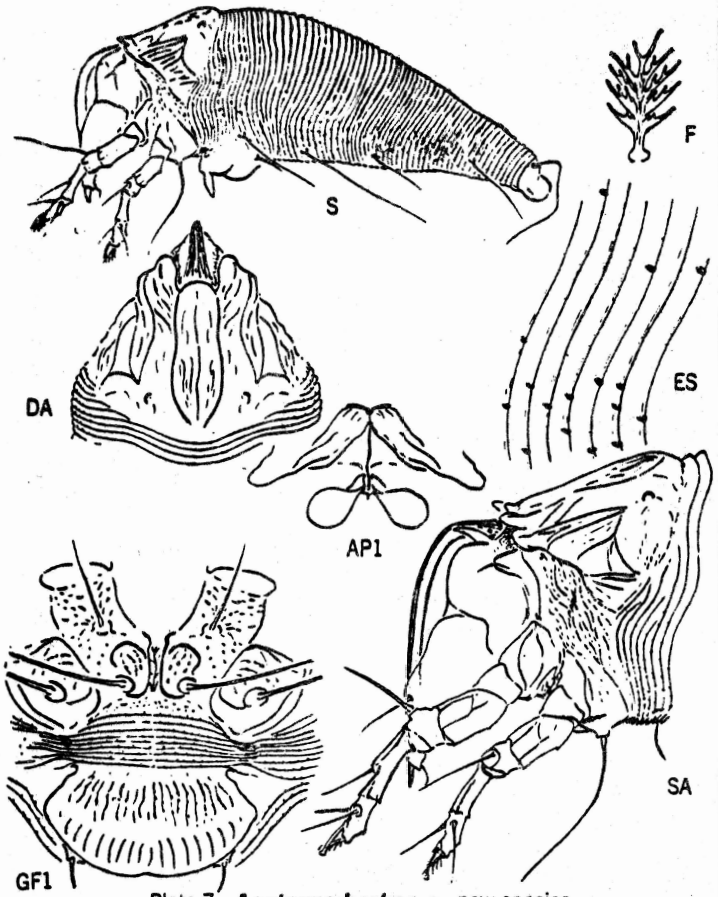

Plate 7 - ***Asetacus barbarae,*** new species

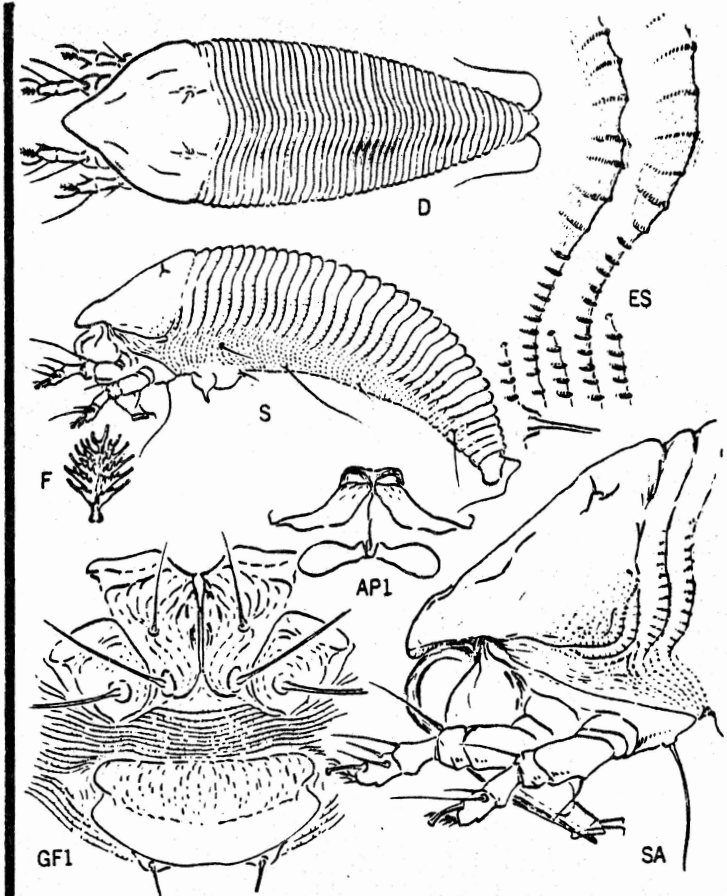

Plate 8 - ***Catarhinus tricholaenae,*** new species

First submedian line curving from double entero-lateral lobes back to rear 3/4 of shield and meeting second submedian line and a curving lateral line ahead of dorsal tubercle; numerous short lines between main lines and on sides of shield. Dorsal tubercles small, 22u apart, ahead of rear margin; dorsal setae missing. Forelegs 46u long; tibia 13u long, seta 8.5u long, at about apical 1/3; tarsus 7.5u long; claw 7u long; featherclaw 5-rayed. Hindleg 44u long, claw 7.5u long. Anterior coxae separated by narrow longitudinal ridge, the coxae set with lines of granules and a subelliptical area, raised, inside second setiferous tubercles; second tubercles hardly ahead of transverse line thru third setiferous tubercles. Abdomen with about 70 rings, a slight dorso-ventral reduction in ring number; rings sparsely microtuberculate especially dorsally. Lateral seta 20u long, on sternite 8; first ventral 70u long, on sternite 22; second ventral 17u long, on sternite 42; third ventral 27u long, on sternite 9 from rear. Accessory seta minute. Female genitalia 36u wide, 22u long; coverflap with longitudinal striations in two transverse rows: basal series with numerous fine lines and some granules, longer than second series; second series stronger, about 16 lines. Genital seta 15u long.

TYPE LOCALITY: Botanical Gardens, Santa Barbara, Cal. COLLECTED: April 2, 1959 by the writer. HOST: Prunus lyoni Eastwood (Rosaceae), Catalina cherry. RELATION TO HOST: the mites are vagrants on the undersides of the leaves, an infestation recognizeable by the numerous white cast skin streaks left by the mites. TYPE MATERIAL: a type slide and five paratype slides are designated. The hosts of these two species of Asetecus are not related botanically and therefore plant relationship was not the factor in speciation. The factor in this case has been geographical nearness of the hosts. Holly-leaf cherry, Prunus ilicifolia (Nutt.), is very similar to Catalina cherry, grows in the same ecological areas that Catalina cherry inhabits, and can be expected to prove to be a host of the new species also.

CATARHINUS, new genus

This genus is a member of the Rhyncaphytoptinae. The genus differs from Rhyncaphytoptus mainly by the absence of the forefemoral seta, and in having distinct subdorsal longitudinal furrows, one on a side, on the abdomen.

Generic description: body generally spindleform in shape, Rostrum large, tapering, projecting diagonally back under coxae; apical sensory setae moderately large and abruptly bent down at apex; cheliceral sheath rigid; recurved portion of oral stylet long. Shield subtriangular, acute anteriorly; dorsal tubercles set well ahead of rear margin; dorsal setae projecting up; rear shield margin not elevated above tergites. Forecoxae broadly contiguous, forming a slight ridge at junction. Forelegs lacking femoral seta, tibial seta subapically placed; featherclaw simple. Hindlegs with femoral seta and other standard setae. Abdomen with tergites broader than sternites and regularly covering two sternites; a shallow subdorsal furrow on each side from shield, fading to rear. Lateral and three standard ventral abdominal setae present. Female coverflap without conspicuous markings, emarginate at lateral angles; internal apodeme of moderate length, narrowed anteriorly.

Genotype: Caterhinus tricholaenae, new species

CATARHINUS TRICHOLAENAE, new species

Plate 8

Female 180-205u long, 50u wide, 45u thick; robust-spindleform, dull light yellowish in color. Rostrum 46u long, projecting diagonally backwards under coxae. Shield subtriangular, 60u long, 50u wide; anterior lobe rather acute. No definite shield design present. Dorsal tubercles 21u apart; dorsal setae 7u long. Forelegs 38u long; tibia 8u long, seta subapical, 8u long; claw 6u long, sublateral, nearly straight, with terminal knob. Hindlegs 34u long, claw 6u long. Coxae with pattern of lines; anterior coxae broadly contiguous with slight ridge at junction; second and third setiferous tubercles approximately in transverse line. Abdomen with about 34 tergites and 80-85 sternites; completely microtuberculate, the microtubercles fainter and more elongate dorsally; with subdorsal lingitudinal furrow. Lateral seta 16u long, on sternite 12; first ventral 82u long, on sternite 32; second ventral 7u long, on sternite 54; third ventral 27u long, on sternite 6 from rear. Accessory seta absent. Female genitalia 26u wide, 17u long, coverflap emarginate laterally, with faint basal lines; seta 7u long.

TYPE LOCALITY: Campinas, Brazil. COLLECTED: Jan. 8, 1959 by Dr. A. S. Costa. TYPE HOST: Tricholaena rosea Nees (Gramineae), Natal grass. ALTERNATE HOST: Zea mays L., corn. RELATION TO HOST: the mites live on the leaf surfaces and cause discoloration. TYPE MATERIAL: as well as the dry grass blades from which the slides were made there is a type slide and seven paratype slides. There is one paratype slide designated from corn, the collection date being April 15, 1959, and the collector Dr. Costa. The infested corn was growing in a screenhouse. This mite may be expected on other species of grass than the two specified above. The genus name consists of Cata for low, in reference to the recurving rostrum, and rhinus meaning beak.

ACARHYNCHUS, new genus

This genus is a member of the Rhyncaphytoptinae. The principle characters separating this genus from other genera in the subfamily are: a slender filament projecting from the anterior shield lobe, the absence of the forefemoral seta coupled with the presence of the hind femoral seta, and the divided featherclaws which have the median rays parallel for most of their length, rather than diverging in the usual manner.

Generic description: body generally spindleform in shape. Rostrum large, elongate, projecting down; chelicerae abruptly bent down from near base; oral stylet recurving near chelicera base, the recurved part long. Forecoxae broadly contiguous, the junction forming a weak ridge. Forelegs with all usual seta except lacking the femoral seta; the foretibial seta subapically placed on inner side. Hindlegs with femoral seta. Featherclaws divided the central rays close and subparallel. Shield subtriangular, a large broad lobe over rostrum; moderately long slender filament curving down over chelicerae from lobe apex. Dorsal tubercles set well ahead of shield margin; dorsal setae projecting up and centrad. Abdomen subcylindrical, slight subdorsal longitudinal troughs; tergites broader and less numerous than sternites; all usual abdominal setae present. Female genital cover-

flap without definite markings; internal apodeme subacute with anterior emargination.

Genotype: Acarhynchus filamentus, new species

ACARHYNCHUS FILAMENTUS, new species

Plate 9

Female 190-200u long, 55-60u wide, 50u thick, robust-spindleform, dull yellowish. Rostrum 50u long, projecting down; apical sensory seta curved down. Shield subtriangular: 52u long, 55u wide; broad anterior lobe over rostrum; a slender filament from lower front edge of lobe curving down onto chelicerae. Shield lacking design, a central elevated longitudinal area bounded by a line on each side originating at front of lobe, running caudad and diverging somewhat before dorsal tubercles, lying just outside these tubercles and extending to rear margin. Dorsal tubercles 20u apart, ahead of rear margin; dorsal setae 6.5u long, projecting up and centred. Forelegs 39u long; tibia 9u long, with seta 9u long; tarsus 8.5u long; claw 8u long; slender, curved down apically, with a slight knob. Hindlegs 36u long, claw 8.5u long. Coxae with a pattern of curved lines; anterior coxae broadly contiguous; second and third setiferous coxal tubercles in a transverse line. Abdomen with 37 tergites and 60-65 sternites; microtubercles elongate, longer on tergites. Lateral seta 17u long, on sternite 8; first ventral 38u long, on sternite 17; second ventral 15u long, on sternite 35; third ventral 20u long, on sternite 7 from rear. Accessory seta absent. Female genitalia 30u wide, 17u long, coverflap with lateral emargination, a few short lines basally; seta 8u long.

TYPE LOCALITY: Virginia Beach, Va. COLLECTED: September 18, 1958 by J. P. Kelfer. HOST: Arundinaria gigantea (Walt.) Chapm. (Graminae), southern cane, a swamp grass. RELATION TO HOST: the mites are vagrants on the blades. TYPE MATERIAL: as well as the dry leaves with mites, from which the slides were made, there is a type slide designated and six paratypes. The genus name consists of the first three letters of Acarus, plus rhynchus - beak.

DIPTACUS SWENSONI, new species

Plate 10

This species of Diptacus belongs to the group with very short dorsal setae and declivitous rear shield edge. The principle example of this type is gigantorhynchus Nal. The new species differs from gigantorhynchus by having fewer and coarser shield cells, and having a weaker ridge between the forecoxae.

Female 230-250u long, 76u thick, robust-spindleform, probably dull purplish when alive. Rostrum 65u long, projecting down. Shield 40u long, 62u wide, subtriangular. Shield design a network of cells with coarse ridges between; median line distinct on posterior 2/3; admedian lines complete, curving, running together at rear shield margin behind median line; diagonal transverse ridge from median line at 1/3 extending out to lateral rear shield area, bounding the rear of two or three marginal cells; a less well-marked line across in front of dorsal tubercles; rear shield margin elevated, declivitous.

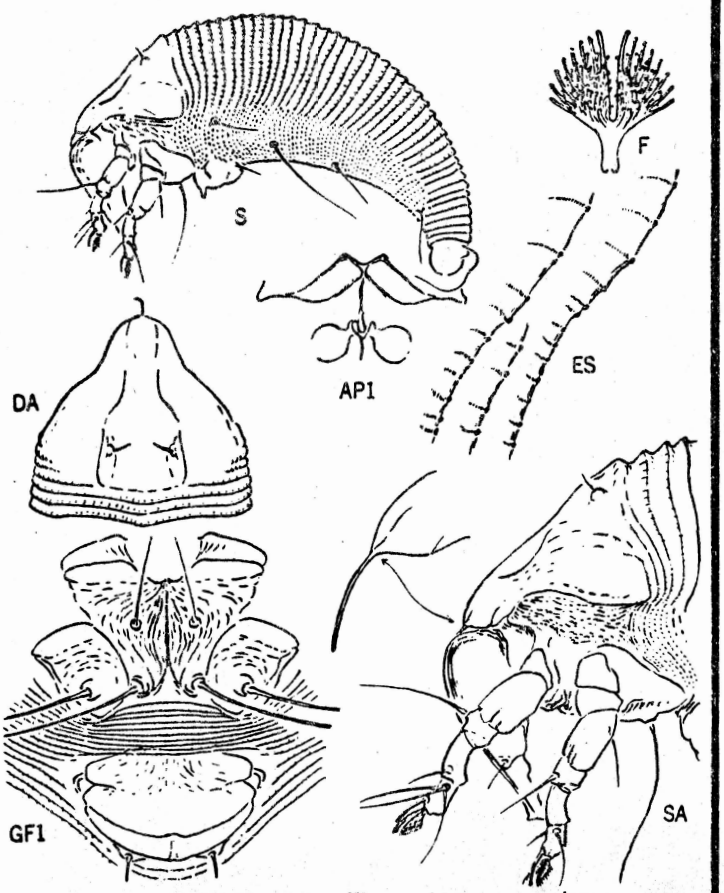

Plate 9 - ***Acarhynchus filamentus,*** new species

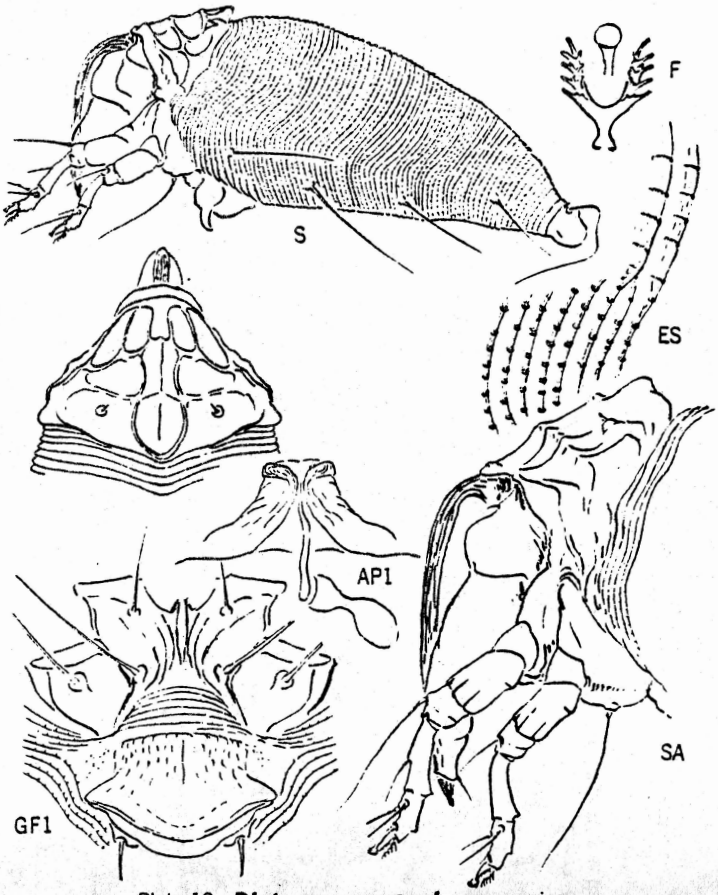

Plate 10 - ***Diptacus swensoni,*** new species

Dorsal tubercles 34u apart; dorsal setae 3u long. Forelegs 53u long, tibia 17u long, with seta 13u long; tarsus 10u long; claw 8u long, curving down, with large knob; featherclaw 5-rayed on a side. Hindlegs 53u long, claw 9.5u long. Coxae without strong markings; forecoxae separated by a weak ridge; second and third setiferous coxal tubercles in a transverse line. Abdomen with a weak sublateral furrow on each side extending back from shield; about 84 rings, completely microtuberculate, the microtubercles touching rear ring margin, dorsal microtubercles elongate. Lateral seta 40u long, on about sternite 29; second ventral 40u long, on sternite 50; third ventral 50u long, on sternite 12 from rear. Accessory seta absent. Female genitalia 34u wide, 30u long, coverflap with some basal longitudinal short lines; seta 10u long.

TYPE LOCALITY: Scholls, Oregon. COLLECTED: March 5, 1959, by Dr. K. G. Swenson. HOST: Ilex aquifolium L. (Aquifoliaceae), holly. RELATION TO HOST: the mites are rust mites that cause browning of the holly leaves. TYPE MATERIAL: a type slide and two paratypes are designated from Scholls. There are also two paratype slides from Tigard, Oregon, collected Jan. 26, 1959, and three paratypes from Otis, Oregon, collected Jan. 28, 1959, all collections by Swenson. The mite is named for its collector who has sent me a number of mites.

Key to Rhyncaphytoptine genera :

1. Featherclaw simple - 2.
1. Featherclaw divided - 6.
2. Dorsal setae absent; femoral setae absent - - - ASETACUS K. 1952
2. Dorsal setae present; with at least hind femoral seta - - - 3.
3. Tergites rounded or nearly rounded in cross section - - - - - 4.
3. Tergites with a subdorsal longitudinal furrow on each side producing a middorsal ridge and a lateral ridge - - - - - - 5.
4. Tergites differentiated from sternites - RHYNCAPHYTOPTUS K. 1939
4. Tergites and sternites similar - - - RHINOPHYTOPTUS Liro, 1943
5. Middorsal ridge uneven in lateral view; with fore and hind femoral setae - - - - - - - - - - - - - - - - QUADRACUS K. 1944
5. Middorsal ridge even; forefemoral seta absent; cheliceral sheath rigid and narrow - - - - - - - - - - CATARHINUS K.
6. Anterior shield lobe with slender filament curving down over rostrum; forefemoral seta absent - - - - - - - - ACARHYNCHUS K.
6. No anterior filament; all femoral setae lacking - - - - - - - 7.
7. Abdominal ridge bifurcate anteriorly - - - TRIMEROPTES K. 1951
7. Tergites rounded or nearly so in cross section - - - - - - - - 8.
8. Dorsal setae present - - - - - - - - - - - - - - - DIPTACUS K. 1951
8. Dorsal setae absent - - - - - - - - - - - - - - - RHYNACUS K. 1951

Designations on the plates: AP1 - internal structures in the female genitalia; D - dorsal view of mite; DA - dorsal view of cephalothoracic shield; ES - lateral skin structures; F - featherclaw from below; GF1 - Coxae and female genitalia from below; S - lateral view of mite; SA - side view of anterior part of mite.

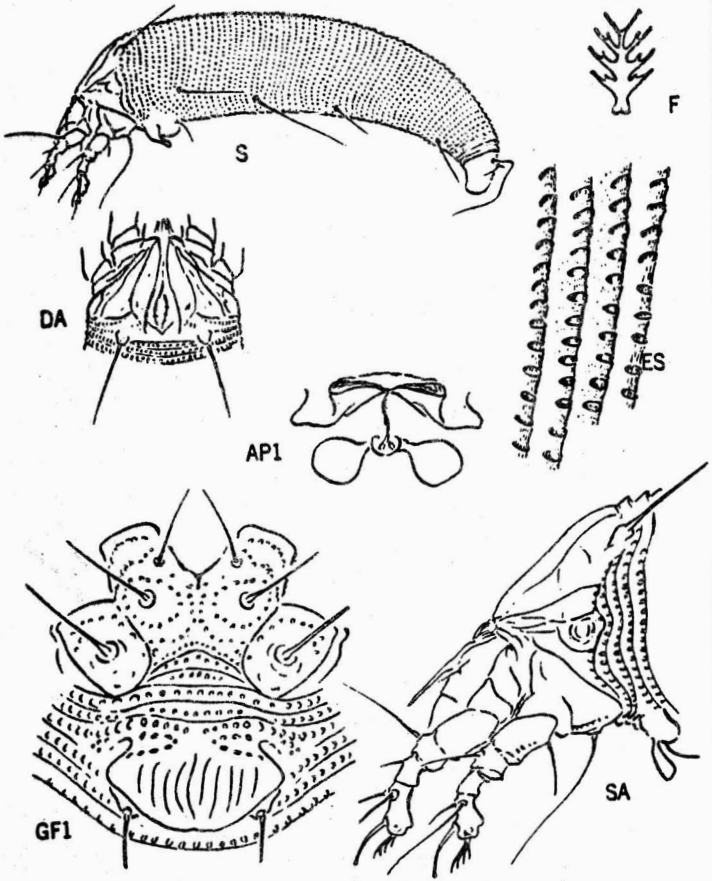

Plate 11 - ***Aceria prostantherae,*** new species

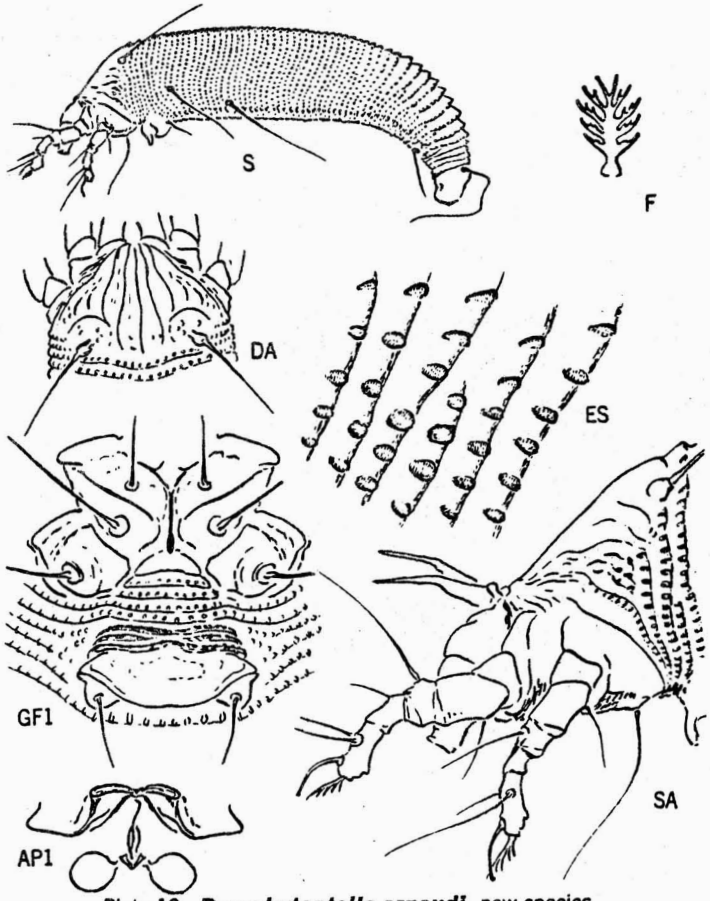

Plate 12 - ***Paraphytoptella arnaudi,*** new species

ADDENDUM

ACERIA PROSTANTHERAE, new species

Plate 11

This mite forms an erineum on the underside of the leaves of spicebush in Victoria, Australia. There are two distinguishing features on this mite: the doubled median line, and the fused forecoxae.

Female 180-200u long, 35-40u thick, wormlike, dull yellow in color. Rostrum 18u long, projecting diagonally down. Shield 24u long, 26u wide, subtriangular. Median shield line present on rear 1/2, doubled for most of distance, ending in a dart-shaped mark before rear margin. Admedians complete, close anteriorly before median, diverging to rear. First submedian line running from anterior end of admedian, back toward dorsal tubercle, forking in front of tubercle, one branch curving to admedian, the other extending transversely outward within rear shield margin. Shield with some lateral longitudinal lines and an ocellar-like convexity at rear lateral margin. Dorsal tubercles 20u apart, on rear margin, dorsal setae 26u long, projecting back and diagonally outwards. Foralegs 25u long, tibia 4.5u long, with 3u long seta; tarsus 8u long; claw 6u long, curved; featherclaw 4-rayed. Hindlegs 23u long, claw 5.5u long. Coxae set with a pattern of granulations tending to circle around setiferous tubercles; forecoxae united centrally; coxal tubercles I, II, and III in a nearly straight diagonal line on each side, the described lines diverging anteriorly. Abdomen with about 66 rings, completely microtuberculate, the microtubercles rounded and touching rear ring margin. Lateral seta 25u long, on ring 7; first ventral 40u long, on ring 22; second ventral 9u long, on ring 39; third ventral 11u long, on ring 6 from rear. Accessory seta 4.5u long. Female genitalia 20u wide, 15u long; coverflap with about ten longitudinal furrows, and some basal microtubercles; seta 4.5u long.

TYPE LOCALITY: Burnley, Victoria, Australia. COLLECTED: May 27, 1957 by C. J. R. Johnston. HOST: Prostanthera lasienthus (Lebiatae), spicebush. RELATION TO HOST: the mites form an undersurface erineum on the leaves. TYPE MATERIAL: as well as the dry leaves with erinea and mites, from which the slides were made, there is a type slide designated, and three paratype slides. This species is presumably the erineum former. However there is also present in this erineum another Eriophyid which is unrelated to this Aceria and which is being named in another publication.

PARAPHYTOPTELLA, new genus

This genus is a member of the Eriophyinae and differs from Paraphytoptus by lacking the second ventral abdominal seta. This is a standard seta possessed by practically all known Eriophyids. In common with Paraphytoptus the new genus has the posterior broad tergal developement toward the rear of the abdomen.

Generic description: Body worm-like. Rostrum of moderate size; chelicerae slightly curved down; oral stylet short. Shield broadly subtriangular; dorsal tubercles on rear margin and directing dorsal setae diagonally backward and outward. Coxae with standard three pair of setiferous tubercles; forecoxae contiguous. Legs with standard series of setae. Abdomen rounded in cross section; lateral seta, first and third ventral setae present, second ventral missing. Coverflap of female genitalia without furrows. Internal female genital apodeme of moderate length, broad.

Genotype: Paraphytoptella arnaudi, new species

PARAPHYTOPTELLA ARNAUDI, new species

Plate 12

Female 190u-220u long, 50u thick, worm-like, dull yellowish in color. Rostrum 22u long, projecting down. Shield 30u long, 35u wide, subtriangular. Median shield line complete. Admedian lines complete, gradually diverging, somewhat recurved posteriorly. First submedian running from anterior end of admedian, back toward dorsal tubercle, curving inward in front of tubercle and receiving a transverse curved line which arises to the side of the tubercle. Side of shield with lines and some granulations. Dorsal tubercles 23u apart; dorsal setae 36u long, projecting backward and diverging. Forelegs 30u long; tibia 6.5u long, with 6.5u long seta; tarsus 9u long; claw 9u long, curved down; featherclaw 5-rayed. Hindlegs 27u long, claw 9.5u long. Coxae with some lines; anterior coxae with a strong diagonal line running backward and centrad between first and second setiferous tubercle; anterior coxae broadly joined, forming a prominent line at rear of junction; second setiferous coxal tubercles well ahead of transverse line thru third tubercles. Abdomen with about 57 rings, completely microtuberculate, the microtubercles rounded. At about the posterior third the dorsal rings broaden into tergites covering two or more sternites each; there are 8 to 10 broad tergites. Lateral seta 33u long, on ring 7; first ventral 45u long, on ring 15; second ventral missing; third ventral 17u long, on ring 5 from rear. Accessory seta 3u long. Female genitalia 22u wide, 14u long; coverflap without markings but with heavy granular transverse lines basally; seta 11u long.

Male about 180u long.

TYPE LOCALITY: Guaymas, Mexico. COLLECTED: May 5, 1953, by Paul H. Arnaud. HOST: Cordia parvifolia DC. (Compositae). RELATION TO HOST: the mites make clusters of beed galls on the leaves. TYPE MATERIAL: as well as the dry leaves with mites in the galls, from which the slides were made there is a type slide designated and four paratype slides. The species is named for its collector who has brought me a number of mites.